Use of the WHAS GIS Technical Element in Wildlife Management at Dallas-Fort Worth Airport

Edwin E. Herricks and Jon Fisher
University of Illinois

Curt Kuehner
Dallas-Fort Worth Airport

Abstract

The WHAS GIS technical element is an information analysis and decision support tool for systematic management of wildlife strike hazards at airports. The GIS technical element of WHAS provides a method of developing a three-dimensional spatial context for wildlife strike hazards, fully considering aircraft operations and common wildlife movement patterns. A prototype WHAS GIS was developed for Dallas-Fort Worth (DFW) airport. This prototype application included integration of GIS data layers from multiple sources available to any airport, including spatial data provided by DFW. Data layers were assessed in relation to a contribution to wildlife hazard management and modified to provide airport operations area (AOA), airport (DFW Property), and local risk attribute information to a distance of approximately 25 miles from the airport. The basis for risk attribute assessment included land use and known wildlife utilization of the area, the DFW Property and the AOA. Field surveys and mapping using global positioning system (GPS) data was then used to refine risk attribute characterization and classification on the AOA and DFW Property. In conjunction with GIS development, historical wildlife data from the wildlife management program at DFW was computerized. This data set has been the foundation for a data mining exercise that has been completed with DFW wildlife management staff. In addition to data mining, wildlife reporting has been integrated with the GIS, providing a basis for spatial and temporal analysis of wildlife risk on the AOA.

The prototype system is being used with aircraft flight path simulations to better define strike hazards in relation to aircraft utilization of this airport. The GIS is also providing a spatial foundation for the development of real-time detection system testing.